

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF

YAMAGUCHI et al.

Group Art Unit: Unassigned

Appln. No.: 09/853,028

Examiner: Unassigned

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Title: METHOD OF MANUFACTURING CERAMIC HONEYCOMB STRUCTURE AND DEVICE FOR FORMING THROUGH HOLES

Date: August 2, 2001

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INFORMATION DISCLOSURE STATEMENT

Enclosed herewith is a PTO-1449 and cited references to be considered by the Examiner. Also enclosed is an Information Sheet that gives the relevance of each Japanese patent cited in the PTO-1449 for which there is no English language equivalent.

This IDS is intended to be in full compliance with the rules, but should the Examiner find any part of its required content to have been omitted, prompt notice to that effect is earnestly solicited, along with additional time under Rule 97(f), to enable Applicant to comply fully.

Consideration of the foregoing and enclosures plus the return of a copy of the enclosed Form PTO-1449 with the Examiner's initials in the left column per MPEP 609 are earnestly solicited along with an early action on the merits.

Respectfully submitted,

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Information List (Form1)

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The following is a List of References provided by Applicant.
Please file an Information Disclosure Statement using this Information.

Document Number	Publication Date	Brief Explanation or Page(s) & Line(s) of Related Part(s)
JPA-9-25180	January 28, 1997	Claim 1
JPB-2946598	July 2, 1999	Claim1; Page 3, left Col., line 33 to 34; Page 3, left Col., line 46 to right Col., line 5; and Page 3, right Col., line 17 to 20.
JPB-2870890	January 8, 1999	Claim 1; Page 3, left Col., line 40 to 44; and Page 3, right Col., line 1 to 9

A.AOKI,ISHIDA & ASSOCIATES

① Japanese Unexamined Patent Publication No. 9-25180

[Claim 1] A method of sealing predetermined through holes on the end surface of a ceramic honeycombed structure, wherein the inner wall surface of the end portion of each through hole not sealed is formed with a film of a material not dissolved in a solvent of a seal material slurry and adapted to be burned or decomposed by being heated, after which the end surface of the ceramic honeycombed structure is dipped in the seal material slurry, so that the seal material slurry is introduced into the through holes thereby to seal the predetermined through holes.

② Japanese Patent No. 2946598

[Claim 1] A method of fabricating a ceramic honeycombed filter comprising the hole end closing step for covering a porous sheet on a first end surface of a ceramic base body having a multiplicity of vent holes for establishing communication between the two end surfaces defined by a thin filtering partitioning wall, supplying a ceramic closing material in each of said vent holes through each pore of said porous sheet, and solidifying said supplied ceramic closing material thereby to close the end portion of said vent holes,

characterized in that said hole end closing step is such that a shield sheet is covered on the second end surface of the ceramic base body, after which a powdered ceramic closing material is supplied to the neighborhood of said second end surface in said vent holes through said pores of said porous sheet thereby to close said vent holes on said second end surface.

(a) (Page 3: lines 33 - 34 on left column)

The porous sheet 4 is made of silicon rubber having a thickness of 1 mm, and has a multiplicity of pores 40 checkerwise.

(b) (Page 3: line 46 on left column to line 5 on right column)

Then, as shown in Fig. 3, through the pores 40 of the porous sheet 4, the mixture powder of resin and ceramic (referred to as the ceramic closing material in this invention) 7 is charged by being dropped into the influent path 2. The mixture powder 7 thus charged is deposited on the shield sheet 8 on the lower end portion in the influent path 2.

Then, as shown in Fig. 4, the mixture powder is heated by the heater 9 through the shield sheet 8. As a result, the thermosetting resin in the mixture powder is hardened, the ceramic powder in the mixture powder 7 is sealed and fixed in the resin, and the resin is closely and firmly attached to the filtering partitioning wall 10.

(c) (Page 3: lines 17 - 20 on right column)

Then, the ceramic base body 1 is heated to higher than the sintering temperature of the ceramic powder. As a result, the resin disappears, and the ceramic powder and the ceramic base body 1 are sintered to each other and integrated with each other.

③ Japanese Patent No. 2870890

(a)

[Claim 1] A method of fabricating a honeycombed filter of ceramic comprising a multiplicity of paths defined by filter walls, said paths including discharge paths each with one side surface thereof closed by a ceramic closing material and influent paths each with the other side surface closed by a ceramic closing material,

characterized in that a filter body not closed is prepared, an elastic sheet having an opening in said discharge path is covered on the one side surface of said filter body, thermosetting resin powder is charged through said opening from above said elastic sheet and deposited on the lower portion of the path, and the assembly is heated to harden the thermosetting resin powder and form a mask portion,

after that, said thermosetting resin powder is charged in the influent path on the other side surface of said filter body, deposited on the lower portion of said path and solidified by being heated thereby to form a mask portion,

after that, said ceramic closing material is pressed into the path inlet portion free of said mask portion on the two side surfaces of said filter body, and

then, the assembly is heated to burn off said mask portion and thus open one side of the path, while said ceramic closing material is sintered with said filter body thereby to close one side of the path.

(b) (Page 3: lines 40 - 44 on left column)

In the method of this embodiment, first, as shown in Figs. 1 and 2, with the one side surface 25 of the filter (upper portion in Fig. 2) located up, the elastic sheet 1 is covered on it. The elastic sheet 1 is preformed with an opening 11 at the corresponding position in the discharge path 23.

(c) (Page 3: lines 1 - 9 on right column)

Then, as shown in Fig. 2, through the opening 11 of the elastic sheet 1, the thermosetting resin powder 4 is charged by being dropped into the discharge path 23. The thermosetting resin powder 4 thus charged is deposited on the metal plate 3 at the lower portion of the discharge path 23.

At this time, the charge operation is stopped, and as shown in Fig. 3, the deposited thermosetting resin powder 4 is heated by the heater 5. As a result, the thermosetting resin powder is hardened by being heated to form a mask portion 40. Said mask portion 40 is closely attached to the filter wall 21 with comparative strength.